IN THE SPECIFICATION:

At paragraph 0019:

Cooling system 12 also includes a condensate injection system 80 coupled in flow communication with pump 62. Condensate injection system 80 includes a piping manifold 82 and a plurality of injectors 84 coupled to piping manifold 82. Piping manifold 82 is attached to ~~gas turbine 10~~ gas turbine engine 10 and receives condensate from pump 62. In the exemplary embodiment, piping manifold 82 is annular and extends circumferentially around high pressure compressor 16 to facilitate supplying a substantially consistent flow of condensate between pump 62 and injectors 84. Spray injectors 84 extend radially inward towards gas turbine centerline axis 43 and are configured to discharge condensate from spray injectors 84 in a fine mist towards high pressure compressor 16. In one embodiment, condensate droplets exit injectors 84 with a mean diameter size of approximately twenty microns.

At paragraph 0020:

During operation, working fluid 70 is channeled to intercooler 50 at a temperature that enables condensate to form in the air-side of intercooler 50. The condensate is then channeled from intercooler 50 and through drain valve 52 to holding tank 54. Pump 56 then channels the condensate from holding tank 54, through demineralizer 58, and into ~~demineralizer holding tank 60~~ demineralizer condensate tank 60. In the exemplary embodiment, demineralizer 58 is at least one of a reverse osmosis apparatus and a ion-exchange apparatus that is configured to facilitate removing trace elements from the condensation. Pump 62 then channels the demineralized condensate through injection system 80 at a predetermined rate. The condensate exiting injection system 80 is atomized by injectors 84 and is discharged into high pressure compressor 16 as a fine mist. The mist facilitates reducing an operating temperature of the airflow within gas turbine engine 10, thus

creating an intercooling effect that enables the air exiting high pressure compressor 16 to have an increased work capacity. Because a temperature of air 55 entering high pressure compressor 16 is reduced, less work is required for high pressure compressor 16.

At paragraph 0021:

Figure 2 is an exemplary graphical illustration of engine 10 shaft power generated using ~~cooling system 50~~ cooling system 12. Figure 3 is an exemplary graphical illustration of engine 10 thermal efficiency generated using cooling system 12. In the exemplary embodiment, and referring to Figure 2, when the ambient air temperature is less than approximately 60° Fahrenheit (F), condensate is not formed in intercooler 50, and thus ~~cooling system 50~~ cooling system 12 is not activated. However, when the ambient temperature increases above approximately 60° F and a desired humidity level is reached, cooling system 12 may be activated, resulting in an increased power output. For example, and more specifically, when the ambient temperature is approximately 100° F, cooling system 12 facilitates increasing the power output approximately seven megawatt (MW), i.e. approximately 8%. Moreover, and referring to Figure 3, operating cooling system 12 results in a thermal efficiency increase when the ambient temperature is approximately 100° F.

At paragraph 0024:

During operation, working fluid 70 is channeled to intercooler 50 at a temperature that enables condensate to form in the air-side of intercooler 50. The condensate is then channeled from intercooler 50 and through drain valve 52 to holding tank 54. Pump 56 then channels the condensate from holding tank 54, through demineralizer 58, and into ~~demineralizer holding tank 60~~ demineralizer condensate tank 60. In the exemplary embodiment, demineralizer 58 is at least one of a reverse osmosis apparatus and a ion-exchange apparatus that is configured to facilitate removing trace elements from the condensation. Pump 62 then channels the demineralized condensate through injection system 80 at a predetermined rate. The condensate exiting injection system 80 is atomized by

injectors 84 and is discharged into low pressure compressor 14 as a fine mist. The mist facilitates reducing an operating temperature of the airflow within gas turbine engine 10, thus creating an intercooling effect that enables the air exiting high pressure compressor 16 to have an increased work capacity.